STATE OF CALIFORNIA

Department of Transportation Specification

Leafing Aluminum Finish Paint, Waterborne Acrylic Latex Vehicle (Formula PWB-160D)

SCOPE

This specification covers a pre-mixed waterborne paint formulated for use as a finish coat on properly prepared metal surfaces.

This coating is intended for spray application. Limited application can be made by brushing and rolling.

REQUIREMENTS

General:

This specification is intended to specify paint that will meet service requirements for bridge construction and maintenance. All properties listed shall be maintained for a minimum of one year after acceptance. If the vendor is making this paint for the first time, the Transportation Laboratory in Sacramento must be consulted.

Materials:

The raw materials for use in the paint formula shall conform to the specifications designated or paint material code number hereinafter specified.

QUALITY ASSURANCE

The inspection, sampling, testing, packaging and marking of the coating shall comply with State of California Specification 8010-XXX-99, *Coatings, Protective, Quality Assurance Requirements.*

Unless otherwise permitted by the Maintenance Engineer, paint shall be sampled at the place of manufacture and application will not be permitted until the paint has been approved by the Maintenance Engineer. Raw materials and copies of batch records used in the manufacture of the paint shall be submitted as requested by the Maintenance Engineer.

All tests will be conducted in accordance with the latest test methods of the American Society for Testing and Materials, Federal Test Method Standard No. 141, and methods in use by the Transportation Laboratory.

Patents:
The contractor shall assume all costs arising from the use of patented materials, equipment, devices, or processes used on or incorporated in the work, and agrees to indemnify and save harmless the State of California, and its duly authorized representatives from all suits at law or action of every nature for, or on account of, the use of any patented materials, equipment, devices, or processes.

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Description:

This specification covers a two-component, waterborne leafing aluminum paint suitable for use as a finish coat. This coating is intended for spray application to properly prepared surfaces exposed to the air. Limited application can be made by brushing or rolling. This paint is an industrial maintenance coating and is not for residential use.

Composition:

This paint shall be supplied with 180 grams of the specified aluminum paste for each liter of vehicle.

Pigment:

Water-dispersible Aluminum Paste: (1)

Characteristics of Pigment:

Nonvolatile content, percent, ASTM D480	**72 min.**

Vehicle

Component		Weight percent	(LB/100 gallons)
Acrylic Latex	**(2)**	**89.31**	**764.0**
2,2,4-Trimethylpentanediol-1,3-monoisobutyrate		**4.44**	**38.0**
Ammonium Hydroxide (28%)		**0.47**	**4.0**
Defoamer	**(3)**	**0.35**	**3.0**
Preservative	**(4)**	**0.05**	**0.4**
Thickener	**(5) }**	**~ 0.12**	**~ 1.0**
2-(2-Methoxyethoxy)ethanol	**} Premix**	**5.26**	**45.0**

Characteristics of Vehicle:

Density, grams per milliliter, ASTM D-1475	1.01 to 1.03
Nonvolatile content, percent, ASTM D2369, B	36.5-38.5
Viscosity, centipoises, ASTM D2196, Test Method A (50 RPM, #3 spindle)	900-1200
High-shear viscosity, ASTM D-4287, 0 to 5-P cone, shear rate 12 000 s^{-1}	0.5 to 0.7
pH	9.0-9.5

Characteristics of Mixed Paint:

Nonvolatile Content, volume percent (calculated using maximum mix water)	33-35
Drying time, 100 μm wet film, ASTM D-1640	
set to touch, hours	½ maximum
dry through, hours	1 maximum

(1) Hydro Paste® 830 (Silberline)
(2) Maincote® HG-54D (Rohm and Haas)
(3) Foamaster® AP (Henkel)
(4) Proxel® GXL (ICI Americas)
(5) Acrysol® RM-8W (Rohm and Haas)

Packaging:

The paint shall be packaged in two separate containers in quantity such that the entire contents of a container of aluminum paste is mixed with the entire contents of a container of vehicle. All containers shall have removable lids. The containers shall be new, round and of no more than twenty liter (20 L) capacity. Pails larger than fifteen liters shall be standard, full open head. Three liter and larger containers shall have ears and bails. All containers shall be suitably lined or constructed so as to prevent any reaction between the container and contents and also must comply with U.S. Department of Transportation or I.C.C. Regulations as applicable.

Labels must be marked with the volatile organic content (VOC), mixing instructions, and the following proviso in addition to any other labeling required:

THIS PAINT MUST BE MIXED FOLLOWING LABEL DIRECTIONS PRIOR TO USE.
PAINT MUST BE USED WITHIN 24 HOURS OF MIXING.
DO NOT PLACE MIXED PAINT IN SEALED CONTAINERS

Mixing Procedure (for mixing a 19-liter unit):

Add 1 to 2 liters of potable water to the aluminum paste and mix to a smooth, lump-free consistency. Slowly stir in the vehicle. Mix well, but avoid incorporating air into the paint. Strain the mixed paint through a double layer of cheesecloth or equivalent strainer prior to use. The paint must be mixed fresh each day.

Application:

The mixed paint shall be applied to a total dry film thickness of 37 µm minimum and 75 µm maximum. This coating is intended for spray application, however limited application can be made by brush. Paint should not be applied when the ambient or surface temperature is above 38°C or below 10°C, when the relative humidity exceeds 75 percent, or when the surface temperature is less than 3°C above the dew point.

Clean-up:

Use tap water for clean-up. 10% ammonia, acetone or other suitable solvent may be used to remove dried paint from spray guns and other equipment.